



FLWEMS Paramedic Medication Information For:

FUROSEMIDE

(Lasix)

(fur-OH-seh-myd)

Pregnancy Category: C Apo-Furosemide★ Furoside★ Lasix Lasix Special★ Myrosemide Novo-Semide★ (Rx)

Classification: Loop diuretic

See Also: See also *Diuretics, Loop*.

Action/Kinetics

Inhibits the reabsorption of sodium and chloride in the proximal and distal tubules as well as the ascending loop of Henle; this results in the excretion of sodium, chloride, and, to a lesser degree, potassium and bicarbonate ions. The resulting urine is more acid. Diuretic action is independent of changes in clients' acid-base balance. Has a slight antihypertensive effect. Onset: PO, IM: 30-60 min; IV: 5 min. Peak: PO, IM: 1-2 hr; IV: 20-60 min. t_{1/2}: About 2 hr after PO use. Duration: PO, IM: 6-8 hr; IV: 2 hr. Metabolized in the liver and excreted through the urine. May be effective for clients resistant to thiazides and for those with reduced GFRs.

Uses

Edema associated with CHF, nephrotic syndrome, hepatic cirrhosis, and ascites. IV for acute pulmonary edema. PO to treat hypertension in conjunction with spironolactone, triamterene, and other diuretics *except* ethacrynic acid. *Investigational:* Hypercalcemia.

Contraindications

Never use with ethacrynic acid. Anuria, hypersensitivity to drug, severe renal disease associated with azotemia and oliguria, hepatic coma associated with electrolyte depletion. Lactation.

Special Concerns

Use with caution in premature infants and neonates due to prolonged half-life in these clients (dosing interval must be extended). Geriatric clients may be more sensitive to the usual adult dose. Allergic reactions may be seen in clients who show hypersensitivity to sulfonamides.

Side Effects

Electrolyte and fluid effects: Fluid and electrolyte depletion leading to dehydration, hypovolemia, thromboembolism. Hypokalemia and hyponatremia may cause metabolic alkalosis. Hyperuricemia, azotemia, hyponatremia. *GI:* Nausea, oral and gastric irritation, vomiting, anorexia, diarrhea (especially in children) or constipation, cramps, pancreatitis, jaundice, ischemic hepatitis. *Otic:* Tinnitus, hearing impairment (may be reversible or permanent), reversible deafness. Usually following rapid IV or IM administration of high doses. *CNS:* Vertigo, headache, dizziness, blurred vision, restlessness, paresthesias, xanthopsia. *CV:* Orthostatic hypotension, thrombophlebitis, chronic aortitis. *Hematologic:* Anemia, thrombocytopenia, neutropenia, leukopenia, *agranulocytosis* purpura. *Rarely, aplastic anemia.* *Allergic:* Rashes, pruritus, urticaria, photosensitivity, exfoliative dermatitis, vasculitis, erythema multiforme. *Miscellaneous:* Interstitial nephritis, fever, weakness, hyperglycemia, glycosuria, exacerbation of, aggravation of or worsening of SLE, increased perspiration, muscle spasms, urinary bladder spasm, urinary frequency.

Following IV use: Thrombophlebitis, *cardiac arrest.* *Following IM use:* Pain and irritation at injection site, *cardiac arrest.*

Because this drug is resistant to the effects of pressor amines and potentiates the effects of muscle relaxants, it is recommended that the PO drug be discontinued 1 week before surgery and the IV drug 2 days before surgery.

Overdose Management

Symptoms: Profound water loss, electrolyte depletion (manifested by weakness, anorexia, vomiting, lethargy, cramps, mental confusion, dizziness), decreased blood volume, *circulatory collapse (possibly vascular thrombosis and embolism).* *Treatment:* Replace fluid and electrolytes. Monitor urine electrolyte output and serum electrolytes. Induce emesis or perform gastric lavage. Oxygen or artificial respiration may be needed. Treat symptoms.

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Additional Drug Interactions

Charcoal / ↓ Absorption of furosemide from GI tract *Clofibrate* / Enhanced diuretic effect *Hydantoins* / ↓
Diuretic effect of furosemide *Propranolol* / ↑ Plasma propranolol levels

How Supplied

Injection: 10 mg /mL; *Solution*: 10 mg/ mL, 40 mg/5 mL; *Tablet*: 20 mg, 40 mg, 80 mg

Dosage

•Oral Solution, Tablets *Edema*.

Adults, initial: 20-80 mg/day as a single dose. For resistant cases, dosage can be increased by 20-40 mg q 6-8 hr until desired diuretic response is attained. Maximum daily dose should not exceed 600 mg. Pediatric, initial: 2 mg/kg as a single dose; then, dose can be increased by 1-2 mg/kg q 6-8 hr until desired response is attained (up to 5 mg/kg may be required in children with nephrotic syndrome; maximum dose should not exceed 6 mg/kg). A dose range of 0.5-2 mg/kg b.i.d. has also been recommended.

Hypertension.

Adults, initial: 40 mg b.i.d. Adjust dosage depending on response.

CHF and chronic renal failure.

Adults: 2-2.5 g/day.

Antihypercalcemic.

Adults: 120 mg/day in one to three doses.

•IV, IM *Edema*.

Adults, initial: 20-40 mg; if response inadequate after 2 hr, increase dose in 20-mg increments. Pediatric, initial: 1 mg/kg given slowly; if response inadequate after 2 hr, increase dose by 1 mg/kg. Doses greater than 6 mg/kg should not be given.

Antihypercalcemic.

Adults: 80-100 mg for severe cases; dose may be repeated q 1-2 hr if needed.

•IV *Acute pulmonary edema*.

Adults: 40 mg slowly over 1-2 min; if response inadequate after 1 hr, give 80 mg slowly over 1-2 min.

Concomitant oxygen and digitalis may be used.

CHF, chronic renal failure.

Adults: 2-2.5 g/day. For IV bolus injections, the maximum should not exceed 1 g/day given over 30 min.

Hypertensive crisis, normal renal function.

Adults: 40-80 mg.

Hypertensive crisis with pulmonary edema or acute renal failure.

Adults: 100-200 mg.

END OF INFORMATION – NOTHING FOLLOWS